HYGIENE AND PUBLIC HEALTH

UNDER THE CHARGE OF
MILTON J. ROSENAU, M.D.,
PROFESSOR OF PREVENTIVE MEDICINE AND HYGIENE, HARVARD MEDICAL SCHOOL,
BOSTON, MASSACHUSETTS,
AND
GEORGE W. McCOY, M.D.,
DIRECTOR OF HYGIENIC LABORATORY, UNITED STATES PUBLIC HEALTH SERVICE,
WASHINGTON, D. C.

A Possible Mechanism for the Excitation of Infections of the Pharynx and Tonsils.—The vasomotor reactions of the buccal and pharyngeal mucous membranes to chilling of the body surface have been studied by MUDD and GRANT (*Jour. Med. Research*, 1919, xl, 53–101) in the hope of throwing light upon the mechanism by which chilling may excite infection of the mucous membranes by their indigenous bacteria. The authors devised simple wire "applicators" for holding in apposition with the skin or exposed mucous surfaces the terminals of thermopiles in circuit with a d'Arsonval galvanometer. From the thermometer and galvanometer readings the temperature of the surfaces beneath the thermopiles may be computed and temperature changes accurately followed. The cutaneous chilling of these experiments caused only inconsequential changes in blood temperature and pressure. Rate and depth of respiration were kept constant. Superficial temperature varied directly with rate of blood supply, and was an index of local vasomotor tone. This thermogalvanometric method, checked by observations of color change, showed that chilling of the body surface causes reflex vasoconstriction and ischemia—not, as hitherto assumed, congestion—in the mucous membranes of the palate, faucial tonsils, oropharynx and nasopharynx. With inhalation of amyl nitrite, skin temperature has always shown a sharp, transient rise. The mucous membranes, if relatively ischemic, show a rise parallel to the skin. If already hyperemic, local vasodilatation in the mucous membrane with amyl nitrite is more than counterbalanced by the lowering of general blood-pressure and the temperature falls. Scar tissue showed reflex vasoconstriction parallel to that of the neighboring skin. The earliest scar tested and proved to have vasomotor fibers was at the site of an operation performed a month before for removal of a keloid. In four instances exposure was followed by a "cold" or sore-throat. It does not seem improbable that the ischemia of the mucous membranes incident upon cutaneous chilling might so disturb the equilibrium between the host and the bacteria in the tonsillar crypts and folds of the pharyngeal mucosa as to excite infection.

Influenza at San Quentin Prison, California.—STANLEY (*Public Health Reports*, 1919, xxxiv, 996) reports three distinct epidemics of influenza in 1918, the first in April with 500 cases, the second in October with 69 cases, and the third in November with 59 cases. The mode of conveyance was believed to be rather direct contact and it was thought that moving picture shows were responsible for considerable extension of the epidemic. Masking was tried, but appeared to have no influence on the spread of the infections. Tuberculosis developed in a number of cases. The following conclusions are drawn: (1) Each epidemic was apparently introduced by a recently infected entrant. (2) Close contact in crowded, poorly ventilated showrooms probably spread the infection. (3) The incubation period is from forty to sixty hours. (4) The second epidemic was less severe than the first, and the third less severe than the second, as shown by the number diseased, number of pneumonia cases, and number of deaths in each. (5) The infection spread in definite groups by close contact, as shown by its course in the rooms where night school was held. (6) The disease in the first and second epidemics attacked more prisoners between ages twenty to twenty-five, but in the third, more between the ages twenty-five and thirty as well as forty to forty-five became ill. (7) The most effective means available for combating the spread of the disease in this prison were hospitalization, quarantine, isolation, and closure of congregating places. (8) From the first epidemic it is seen that 5 per cent. developed tuberculosis. (9) It appears that those men who entered prison after the April epidemic were attached in greater numbers than those who had come before, although there were more of the latter than the former.

The Surgical Treatment of Typhoid Carriers.—NICHOLS, SIMMONS and STIMMEL (*Jour. Am. Med. Assn.*, 1919, lxxiii, 680–684) believe that the so-called urinary typhoid carriers are really kidney carriers, and can be cured by nephrectomy; that intestinal carriers are really bile passage carriers of two kinds, (*a*) cases in which the gall-bladder alone is infected and which can be cured by cholecystectomy, and (*b*) cases in which gall-bladder and bile passages are both infected, and which cannot be cured by surgical measures.

A Study of the Relation of Diet to Pellagra Incidence in Seven Textile-mill Communities of South Carolina in 1916.—GOLBERGER and WHEELER (*Public Health Reports*, March 19, 1920, pp. 648–708), to supplement their studies, chiefly experimental, of 1914 and 1915, began a study in the spring of 1916 in seven cotton-mill villages of South Carolina of the relation of factors of a dietary, economic and sanitary character to the incidence of pellagra. In this report they give the results of the first year's work with respect to the relation of household diet to pellagra incidence. They state that the selected communities were typical cotton-mill "villages," and were of about average size; none had over 800 or less than 500 inhabitants. Only the families of white mill operatives were included in the study. Pellagra incidence was determined by a systematic biweekly house-to-house search for cases carried on continuously from April 15, 1916, to the end of that year. Only patients with a clearly defined bilaterally symmetrical eruption were recorded as having pellagra. It is suggested that, clinically, pellagra includes at least two commonly associated but etiologically essentially distinct, though closely related, syndromes. The indications afforded by this study suggest that the pellagra preventive power of a milk or a meat supplement is due to the effect of a correction in the type of diet studied, of a deficiency supply either (1) of some amino-acid or acids, (2) of the ash or of some of its constituents, (3) of some as yet unknown essential (vitamine?) or (4) of all or of a combination or combinations of some of these. Conversely, they suggest that the pellagra-producing dietary fault is the result of some one or of a combination or combinations of two or more of the following factors: (1) A physiologically defective protein (amino-acid) supply; (2) a defective or inadequate mineral supply; (3) a deficiency in an as yet unknown dietary essential (vitamine?). The somewhat lower plane of supply, both of potential energy and of protein, in the diets of the pellagrous households, though apparently not an essential factor, may, nevertheless, be contributory by favoring the occurrence of a deficiency in intake of some one or more of the essential dietary factors, particularly with diets having only a narrow margin of safety. The indications afforded by this study clearly point to an increase in the availability of milk, particularly by increasing cow ownership, and of fresh meat, by all-year-round meat markets as important practical measures of prevention and control in communities of the character studied. After the manuscript had gone to press, the authors received a copy of the "Report of a Committee on Enquiry Regarding the Prevalence of Pellagra among Turkish Prisoners of War" in Egypt (published February, 1919). Among the conclusions reached, the following are of most interest in the present connection: (*a*) "There is no evidence of the presence of any bacterial infection standing in etiological relation to pellagra; (*b*) there is no evidence of infection by any protozoal, spirochetal, or ultramicroscopic organism standing in etiological relation to pellagra; (*c*) pellagra is due to a deficiency in protein as gauged by its biological value."

Botulism: Protective Measures and Cautions from the U. S. Bureau of Chemistry, Department of Agriculture.—The Public Health Service (*Public Health Reports*, 1920, xxxv, 327) in an article based in part on the work of the Bureau of Chemistry, Department of Agriculture, presents the salient points in connection with the outbreaks of botulism that have been rather frequent in the United States in recent months. Ripe olives, commercially packed in glass, have been the cause of the majority of cases, though home-canned beans, asparagus and corn have accounted for some cases. Heating of food in the process of canning by immersion of the containers in hot water for a short time (one-half hour) does not suffice to kill the spores, but actual boiling of the material for such a period is sufficient. Food showing any evidence of spoilage should not be consumed.

Source and Significance of Streptococci in Market Milk.—Jones (*Jour. Exper. Med.*, 1920, xxxi, 347–361) states that the principal source of streptococci in milk is the cow's udder. The udder streptococci fall into two broad groups: those of the larger group agree in cultural characters and agglutination affinities with mastitis streptococci; the smaller group is composed of low acid-producing streptococci. The streptococci of the latter group produce clear zones of hemolysis about surface and deep colonies in horse blood agar plates. They attack dextrose, lactose, saccharose, and maltose, but do not ferment raffinose, inulin, mannite, or salicin. Acid production in dextrose by the members of this group is about the same as that produced by human streptococci under the same conditions. The limiting hydrogen ion concentration for these pleomorphic udder streptococci in dextrose serum bouillon is within the limits of the limiting hydrogen ion concentration observed by Avery and Cullen for human streptococci. All the streptococci from the vagina, saliva, skin, and feces have been non-hemolytic. Those from the saliva form a heterogeneous aggregation in which individuals fermenting raffinose, inulin, and mannite predominate. From the skin a characteristic streptococcus has been found. It produces acid in dextrose, lactose, saccharose, maltose, raffinose, mannite, and salicin, but fails to acidulate media containing inulin. The fecal streptococci are characterized by the formation of large amounts of acid in dextrose, lactose, saccharose, maltose, raffinose, inulin, and salicin. Mannite is not fermented. Neither the fecal nor the skin streptococci have been isolated from bottled milk with any great frequency.

Filariasis in Southern United States.—Francis (*Hygienic Laboratory Bull.* 117, Washington, D. C., 1919) made a study of the prevalence of filariasis in the large southern cities, examining the blood of several hundred persons. Charleston, South Carolina, was the only city furnishing any considerable number of infestations, and in that city 77 persons among 400 examined harbored the parasites. The few infected persons found in other cities, Columbus, S. C., Beaufort, S. C., Jacksonville, Florida, and Tampa, Florida, probably were all contaminated in Charleston, S. C., or in Cuba where this infection is widespread. The lack of spread in communities other than Charleston, S. C., is attributed to failure of parasites to multiply in the mosquito, the small number of parasites imbibed, and the necessity for a male and female embryo to find lodgment in the same lymph gland, the limited number of homes where infection is likely, the chance that the larvæ may not have penetrated the skin, and finally the chance that in the mosquito the larvæ may not reach the proboscis. While these factors are operative in both the endemic foci and elsewhere, the occasional introduction of an infected person usually will fail to start the cycle which results in the perpetuation and spread of the disease. It is said that a shipload of slaves from an African filariasis focus was landed at Charleston many years ago and the present infestation is attributed to these. Work by Francis confirmed the previously demonstrated fact that Culex fatigans is the host of the Filariasis bancrofti. The writer recommends anticulex measures to abolish the mosquito pest and to do away with the risk of infections with filariæ. Very few of the cases showed chyluria or evidences of elephantiasis.

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All communications should be addressed to—

Dr. George Morris Piersol, 1913 Spruce St., Philadelphia, Pa., U. S. A.